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ABSTRACT

Higher Education for Learning Problems (H.E.L.P.) is a tutorial program for students at Marshall University (West Virginia) who have learning disabilities. Tutoring in coursework is done by graduate assistants under the supervision of the director or assistant director. Remedial instruction in reading, spelling, and written language is provided by tutors with a master's degree in learning disabilities. Student participants are from 23 states. There are 120 students enrolled in the program during the academic year, and 60 enrolled in the summer program, which is required of students with more severe disabilities. In the summer program, students enroll in one class through the university, through which note-taking, study, and test-taking skills are taught by the program. The 4-hour-per-day summer program also provides adequate time to address remediation of basic skills. H.E.L.P. is self-supporting, funded by the tutoring fees paid by students in the summer. Attached are two journal research reports generated by the program: "Dyslexic Doctors: A Resource in Need of Discovery" (Barbara Priddy Guyer) and "The Effectiveness of a Multisensory Alphabetic Phonetic Approach with College Students Who Are Learning Disabled" (Barbara Priddy Guyer and David Sabatino). (MSE)

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H.E.L.P.

(Higher Education for Learning Problems)

Marshall University

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HE 023 221

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AASCU/ERIC Model Programs Inventory Project

The AASCU/ERIC Model Programs Inventory is a two-year project seeking to establish and test a model system for collecting and disseminating information on model programs at AASCU-member institutions--375 of the public four-year colleges and universities in the United States.

The four objectives of the project are:

- To increase the information on model programs available to all institutions through the ERIC system
- To encourage the use of the ERIC system by AASCU institutions
- To improve AASCU's ability to know about, and share information on, activities at member institutions, and
- To test a model for collaboration with ERIC that other national organizations might adopt.

The AASCU/ERIC Model Programs Inventory Project is funded with a grant from the Fund for the Improvement of Postsecondary Education to the American Association of State Colleges and Universities, in collaboration with the ERIC Clearinghouse on Higher Education at The George Washington University.

Abstract

Higher Education for Learning Problems (H.E.L.P.) is an individualized tutorial program for Marshall University students who are learning disabled. Tutoring in course work is done by Graduate Assistants under the supervision of the Director or the Assistant Director. Remediation in reading, spelling, and written language is provided by tutors with a Master's degree in Learning Disabilities. Students who participate in H.E.L.P. are from 23 different states. There are 120 students enrolled in H.E.L.P. during the academic year, and there are 60 students enrolled in Summer H.E.L.P. The summer program is required of more severely handicapped participants. In the latter program students enroll in one class through the university. Summer H.E.L.P. teaches note-taking skills, study skills, and test-taking skills through the course that is being taken. The four hour per day summer program provides adequate time to also address remediation of basic skills.

The program is self supporting and is funded by the tutoring fees paid by students each semester.

Introduction

H.E.L.P. was begun in 1981 with a small grant from the Marshall University Foundation. The program began with a Director, who received released time from the University, two Graduate Assistants, and three undergraduate learning disabled students. The program has gradually grown, and today there are 120 students enrolled in H.E.L.P., with 25 Graduate Assistants, 15 part-time Learning Disabilities specialists who provide remediation to students in reading, spelling, and written language.

H.E.L.P. provides valuable training for many Graduate Assistants, and for this reason, it is a part of the College of Education. It is also a worthwhile experience for Counseling and Psychology majors who work with students plagued by exam anxiety, lack of self concept, etc.

Topics that are address in H.E.L.P. include the following: assistance with note-taking skills; assistance with study skills; assistance with test-taking strategies; improvement of organizational skills; improvement of memory. For those students who wish to participate in remediation, opportunities are available to improve basic skills in reading, spelling, written language, and mathematics.

A liaison is established between the student, H.E.L.P.,and the student's professors. Each professor is informed about what can be expected of the student in the classroom and in test-taking situations. An attempt is made, whenever possible, to enroll H.E.L.P. students in the classes of professors who have shown an

Background

From 1977 until 1980 professors instructed students to stop by my office after they had been dismissed for academic reasons. Some of the students agreed to be tested, and they were ultimately diagnosed as being learning disabled (many were dyslexic). I became convinced of the need for a support program for the college student who is learning disabled.

LD children had grown up and gone to college. It was not fair to just let them fail without providing a service that would help them compensate for their problems, especially when studying for and taking tests.

H.E.L.P. differs from many support programs because it has a remedial aspect to the program. Many students see a Learning Disabilities Specialist regularly so that they may learn to improve their reading, spelling, and written language skills. Professors are more cooperative with H.E.L.P. when they learn that the student is continuing to try to improve his basic skills.

Description

H.E.L.P. is an individualized tutorial program for Marshall University students who are learning disabled. Twenty-three Graduate Assistants provide tutorial assistance in course work, and 15 Learning Disabilities Specialists provide remedial assistance in reading, spelling, and written language.

The focus of the program is to make success in college possible for the learning disabled student who has college potential. The goals of the program are to assist students who are learning disabled to become more proficient in taking tests and studying. It also strives to help them learn to utilize their time more efficiently. The primary goal is to be successful in course work; however, when time permits many students work with remedial tutors to improve their reading, spelling, written language, and math. skills.

The program, which has a Director, Assistant Director, and a secretary, is self supporting. The tutoring fees paid by students enrolled in H.E.L.P. cover the expenses of the program. Scholarships are available for local students who cannot afford the cost of the program. Scholarships are funded by local corporations and organizations.

Results

H.E.L.P. has been in operation eight years at Marshall University. We have a 90% success rate with our students. Success is defined as completing the semester without being placed on probation. If a student is already on probation and the grade point average is improved, the semester is considered successful.

Research involving our reading program was published in the August 1989 issue of Journal of Learning Disabilities. Learning disabled college students who were taught reading using a non-phonetic approach regressed during the summer of the study, whereas students who were taught reading using a multi-sensory phonetic approach made significant progress. Students who did not attend summer school progressed at an insignificant rate. (Copy of the article is enclosed, as well as a narrative about the dyslexic medical students who are in Medical H.E.L.P. The latter appeared in Southern Medical Journal, Sept. 1988.

Conclusions and Recommendations

Based on the results of the study in Journal of Learning Disabilities, the techniques used in teaching reading to learning disabled college students enrolled in H.E.L.P. has been significantly more successful than the non-phonetic approach that was used.

The study was not funded and the research was the topic of the thesis written in partial fulfillment of the requirements for a Master's degree in School Psychology.

It should not be difficult to replicate our adaptation of a multi-sensory phonetic approach in teaching reading to learning disabled college students.

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Dyslexic Doctors: A Resource in Need of Discovery

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ABSTRACT: Dyslexic students are applying for admission to medical school. In most cases they have worked hard in college, and their credentials are good (with the likely exception of a low score on Skills Analysis—Reading on the Medical College Admissions Test). In the past a number of well known dyslexics have made substantial contributions in various disciplines, including a few in medicine. Without appropriate assistance, many dyslexic students will be unable to compete successfully and to complete medical school. With appropriate assistance, however, they can complete medical school and become competent, creative professionals. Dyslexic medical students must be held to the same standards expected of other students. In our experience they require only (1) assistance with study skills, (2) limited academic tutoring in some courses, (3) extended time on written examinations, and (4) separate rooms for written examinations to avoid distractions. These special considerations on examinations are also allowed by the National Board of Medical Examiners.

A FEW YEARS AGO I received a telephone call from Robert W. Coon, MD, Dean of the School of Medicine at Marshall University. He told me that he was concerned about a first-year medical student who was making very poor grades. The Dean commented, "I believe this student has dyslexia. I'd like for you to talk with him and test him." I curiously awaited the appointed time of the meeting, wondering what type of person could have survived this long, only to fail miserably in medical school.

THE GENIUS WITH READING PROBLEMS

The young man whom I met the next week was strikingly handsome; his vocabulary was exceptional, his grammar was perfect, and his appearance was impeccable. This seemed to be a young man who had everything. When we began to talk, he told me that he had always known that something was wrong with him, but he didn't know what it was. He had always made good grades, but he had to work harder than his peers to get them. He had always considered himself an overachiever, working hard to succeed despite his self-perceived lack of intelligence and ability. Now there was not enough time left in the day after classes for him to study longer than his peers. Everyone studied long hours, and there were not enough hours in the day for him to study adequately. He usually read a chapter in a textbook five times, but many of his reading assignments were so lengthy that he couldn't re-read them more than once, and one reading simply wasn't enough. He didn't know what he had read. He had nightmares about the physiology textbook that awaited him the next semester—1,500 pages!

The Early Years

The young man, Bob, informed me that he had not begun talking until he was 3 years old. His family is successful and well educated. His siblings have postgraduate degrees, and this comparison has probably compounded his feelings of inferiority.

Bob has always been a very friendly person, and he has never lacked friends. His ready smile, infectious laugh, and easygoing manner result in quick acceptance by his peers.

Bob reversed letters in elementary school, and he continues to transpose letters within words. He omits and inserts words and phrases when he reads. He has difficulty reading some words, and he attempts to guess what the word is by the context of the sentence. Sometimes this works, and at other times he finds himself on a tangent that leads nowhere. When he writes, he carefully selects

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TABLE. Subject's Test Scores

Wechsler Adult Intelligence Scale—Revised

Full-scale IQ—150

Wide Range Achievement Test—Revised

Area	*Standard Score*	*Percentile*
Reading	101	53
Spelling	98	45
Arithmetic	99	47

Iowa Test of Silent Reading—Level 3 Form E

Area	*Stanine*	*Percentile*
Vocabulary	7	86
Reading comprehension	6	71
Reading efficiency	1	3

words that he can spell. On timed tests he falls apart. The anxiety he feels when he knows he must read rapidly seems to make it impossible for him to comprehend what he reads. Paying attention in class has always been difficult for him, and it has been the source of trouble on numerous occasions.

Medical School and Failure

As one would expect, Bob took the Medical College Admissions Test (MCAT) more than once. His scores on the Science subtests were very good, but his scores on Skills Analysis (Reading) were at rock bottom. On timed tests such as the MCAT, Bob's anxiety level is so high before he begins that he soon becomes his own worst enemy. Years of frustration with reading plague him whenever he reads under pressure. The anxiety and lack of skills when he reads rapidly make it almost impossible for him to comprehend what he reads. Complex multiple choice questions cause additional anxiety because Bob realizes that the medical career he has dreamed about all his life hinges on his ability to overcome the problems he has with reading these questions. (The specific type of question that is so difficult for him provides four completions and requires the student to select correct combinations of these completions as answers.)

Bob is very aware of every occurrence in the classroom when he is taking a test: the moving of feet, the movement of paper, the rate of progress made by other students as they turn pages. When someone completes a test and leaves the room, Bob is convinced that the person probably has a perfect paper and was able to respond more quickly than he. He is aware that he wastes much of the limited time allotted for tests with feelings of anxiety and panic.

Results of Educational Evaluation

After Bob was referred to me by the Dean of the Medical School, I gave him a battery of tests, the scores of which are shown in the Table.

Although Bob's reading vocabulary skills were very good, his ability to understand what he read was very poor. It is certainly understandable that he needed to read material five times before comprehending it. These test scores were standardized on students completing the 12th grade, so his scores should actually be lower than they are. (Few tests are standardized beyond the 12th grade.)

Bob has a short attention span and is easily distracted. He finds it very difficult to attend to a lecture because of the many distractions in the classroom. Although he can remember what he hears, he cannot seem to benefit from the lectures because of his distractibility in a large group.

Bob has become depressed. He has not maintained a good diet and has not exercised because he has tried to spend most of his time studying. As the semester has progressed, his problems have mushroomed, partly because of the overwhelming amount of material to be learned and partly because of his decreased physical and emotional stamina.

TUTORIAL PROGRAM

Marshall University has had a remedial/tutorial program for dyslexic college students which is entitled HELP (Higher Education for Learning Problems) for the last six years. The 60 students in the program often excel in science and areas in which the quality of written language is not of primary concern.

Since 1980 I have been consulted on behalf of 11 medical students with problems similar to Bob's. During the spring of 1986 there were five medical students in whom dyslexia had recently been diagnosed, and it was suggested that we plan a summer program that would improve levels of skill in reading and spelling. Attention would also be directed to improving study skills and test-taking skills. In the remedial summer program, we would use the textbooks the students would use in the forthcoming school year.

Summer Program for Medical Students

Before the program began, each medical student had been tested in the areas of intelligence and achievement in reading, spelling, written expression, and mathematics. A program was developed for each student in all areas except mathematics, which did not seem to be as crucial to their success in medical school as areas related to reading and spelling.

Test-Taking Skills. The dyslexic medical students

had limited test taking skills.' They did not know how to successfully respond to multiple choice questions, and they often read material into a question that was not there. They omitted words as they read, and sometimes they read questions as positive when they were negative. *Test-Taking Strategies*[1] was the primary text used with the students.

Study Skills. None of the students knew how to study. We discovered that they were trying to study for many hours at a time with no breaks. They wasted much of that time in daydreaming or sleeping.

They were taught how to locate the main idea and supporting information in a paragraph and to highlight *only* the words needed to convey the thought. Most of the students initially highlighted a large percentage of what they read because *"it all seemed important."*

They were encouraged to outline information that was difficult for them to understand. If they were preparing for a test, they were advised to use large index cards and color coding (red ink for main idea and blue ink for supporting facts). They were told to study for no more than one hour at a time and to allow themselves preplanned breaks of ten to 15 minutes, during which time they were to exercise. Students were encouraged to run up and down stairs in inclement weather. They were told to use a timer when studying and exercising.

Most people who have learning problems have difficulty with retrieving what they have learned. One must have techniques that help them to recall the information and to organize it accurately. Mnemonic devices are made to order for this situation. We taught the students how to develop basic mnemonic devices, and the students used one of their textbooks to practice developing such devices. The students' creativity was evident in their development of many clever devices that should aid them effectively during the school year. The importance of writing the mnemonic devices on index cards with color coding was stressed.

Reading Skills. Emphasis was placed on improving reading skills. Word attack skills and reading comprehension were addressed. To improve word attack skills and spelling, we used an adaptation of the Orton-Gillingham approach,[2] a multisensory phonetic approach that is often used with dyslexic students.

Multisensory Learning. Much emphasis was placed on multisensory learning. Students were asked to read aloud, to "write" important information on the desk top with the index finger while saying aloud what is being written, and to visualize what they need to remember—saying aloud what they visualize (eg, learning the bones of the hand). If a student visualizes a chart, each section should be said aloud as it is visualized. A visualized chart can be recalled during an examination, providing an invaluable key to success. Students were told to determine for themselves how they learned most effectively and to concentrate on the techniques that seemed to work best for them and then to concentrate on using them as effectively as possible.

Asking for Help. The medical students readily admitted that they seldom asked professors questions when they did not understand a concept because they feared that someone would discover that they were "stupid." Instead, they spent wasted hours trying to find the answers alone. Usually they did not participate in study groups for the same reason. The dyslexic students seemed surprised when they were told that most professors were pleased when students were sufficiently interested to ask questions.

Exceptions Made by the Medical School

There are limited exceptions that need to be made for these medical students:

(1) Dyslexic students should be allowed to take a test alone so that they will not be distracted.

(2) Dyslexic students should be allowed time extensions on tests. (Most professors allow double time.)

(3) The Admissions Committee recognizes that when they find a prospective student who has a low reading score on the MCAT and high scores on the Science subtests, they have a student who should receive further testing before being accepted (or rejected). Despite their low reading scores, these students may be superb candidates for admission because of their high intelligence, personality strengths, and skill in science. Without proper assistance, however, their intelligence may not be sufficient to allow them to succeed in the face of their reading problems.

CONCLUSIONS

The Vocational Rehabilitation Act, Section 504,[3] states that a handicapped student has a right to be tested in a manner that will indicate what he knows rather than what his handicap is. Today a student may take the MCAT on tape and/or with a time extension. The National Board of Medical Examiners makes the same allowances for dyslexic students or medical graduates. Before legislation was passed guaranteeing dyslexic students and others certain rights, we would seldom have found the students mentioned in this article surviving in medical school. They would have failed miserably the first year, and they would simply have been told that they needed to

work harder. They would have left school being even more convinced that they were lacking in intelligence.

Four of the five students who participated in the summer program are succeeding in medical school at this time. The one student who seems to be having the most difficulty commented that he is continuing his old study habits. Whenever I speak with him, he says he will begin using the new techniques after the current battery of tests. Bob has recently passed the first part of the National Board of Medical Examiners with a high score, taking the examination with a time extension to allow for his slow reading.

Three of the five students have an attention deficit disorder, for which they are taking methylphenidate HCl (Ritalin), which seems to be making it possible for them to study for longer periods with fewer distractions.

Professors report that the dyslexic medical students who have successfully completed more than the first two years function on a satisfactory level. Because the basic science section of their training seems to be the most difficult for them, it would be wise to allow three years for the basic science curriculum.

Why should we allow these people to become physicians? They have the intellectual ability to master the material if they have minimal modifications in testing and assistance with learning problems. Such assistance should ideally be provided before they enter medical school, but if the dyslexia is diagnosed while they are in medical school, the assistance should be provided during the summer months, when course work is not overwhelming.

Advantages of Being Dyslexic

We are hearing more frequently today about the advantages of being dyslexic. Some of the desirable characteristics that dyslexics have are sensitivity to the needs of others, creativity, athletic ability, verbal ability, and mathematics ability.[4]

Harvey Cushing was a brilliant surgeon, and he won a Pulitzer Prize for his biography of Sir William Osler, but he had great difficulty with spelling. After he had received his medical degree, he sent an application to Yale for a teaching chair. The application contained many spelling errors. Many of his relatives thought he was retarded.[5] Paul Ehrlich, the German bacteriologist, was so poor in German composition that he almost failed to graduate from preparatory school. He had great difficulty with written examinations, and his thesis for his medical degree was almost all in someone else's handwriting. The thesis had notes added by Ehrlich, most of which were misspelled.[6] Neither Cushing nor Ehrlich had a federal law to assist them in their endeavors, but they did have caring, perceptive people in their lives who were willing to make exceptions for them. Without such exceptions, the world might have lost the contributions of these two brilliant, dyslexic men.

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"The exclusive purpose of this Association shall be to develop and foster scientific medicine."

The Effectiveness of a Multisensory Alphabetic Phonetic Approach With College Students Who Are Learning Disabled

Barbara Priddy Guyer and David Sabatino

College students diagnosed as learning disabled were studied to determine whether they would make more progress in a summer program if taught by an adaptation of the Orton-Gillingham (O-G) approach. Progress of those exposed to this approach was compared to progress of those exposed to (a) a nonphonetic approach or (b) no educational activity. Pre- and posttest results are reported for the Wide Range Achievement Test-Revised and Woodcock Reading Mastery Tests. The subjects were 30 college students aged 17 to 24, who were diagnosed as LD. They were divided into groups of 10 and exposed to the indicated educational intervention. The O-G group was found to achieve statistically significant improvement in reading when compared to the group using the nonphonetic approach or no educational activity. No statistically significant difference was noted between the latter two groups. This study indicates that a modified O-G approach is useful in the teaching of reading to college students who are LD.

It is well known that low reading achievement is characteristic of many school-age students who are learning disabled (LD). Adult literacy has been a topic of concern as well (Anderson, Hiebert, Scott, & Wilkinson, 1985; Chall, 1987; Cross, 1981; Hunter & Harmon, 1979; National Assessment of Educational Programs, 1986). There is now considerable evidence that low reading achievement also continues to be a problem for the college student who is LD (Ansara, 1979; Barbaro, 1982; Kahn, 1981; Knowles & Knowles, 1983; Mangrum & Strichart, 1983, 1984; Vogel & Moran, 1982). Hence, service providers in postsecondary settings cannot ignore the importance of continuing research to identify effective and efficient methods for teaching reading to the college student who is LD.

There appears to be a dearth of information regarding the effectiveness of specific techniques used in teaching reading to adults who are learning disabled (Aaron & Phillips, 1986; Cordoni, 1981; Dannenhower, 1972; Ganschow, 1984; Mangrum & Strichart, 1983). Many authors claim success for their programs but do not provide data upon which the effectiveness of the component parts of the programs can be judged. This lack is particularly true in the area of basic instruction. In fact, some studies recommend the teaching of high school and college students be given low priority, though little evidence is presented in support of this position. In such studies, the teacher is urged to teach coping skills in lieu of continuing a remedial program to high school or college students who are LD. Coping skills include such topics as note-taking, study, and test-taking skills (Alley & Deshler, 1979; Deshler et al., 1984).

Until recently, the college student who is LD has received limited attention. Federal and state legislation and court decisions have certainly improved the quality of academic life for these students (*Federal Register*, 1977; Lerner, 1985; Mangrum & Strichart, 1984; Parks et al., 1982; Turnbull & Turnbull, 1979).

The literature has not addressed the effectiveness of the Orton-Gillingham (O-G) approach with the college student who is LD. The O-G approach, or rather, one of its more current adaptations (Cox, 1980; Hornsby & Shear, 1978; Steere, 1984; Traub, 1975), was selected for this study because of the primary investigator's experience in using this approach with public school students in an inner city program and in a women's prison. The purpose of this study was to determine whether college students who are LD would make significantly more progress when taught reading using a modification of O-G compared to a nonphonetic approach or no intervention.

METHOD

Subjects

Subjects were 30 college students who are LD who attend summer school at Marshall University. The subjects were identified by state and public school system criteria, using the Wechsler Adult Intelligence Scale-Revised (WAIS-R) (Wechsler, 1981) and a variety of diagnostic achievement tests. IQs ranged from 94 to 135, with a mean of 105.7. There was more than 1 standard deviation between ability and achievement, and sensory acuity was normal. Diagnostic procedures were sometimes used to evaluate perceptual, language, or behavioral problems, but deficits in the latter three areas were not a requirement for a student to be diagnosed as LD. Eighteen of the students were diagnosed as LD by their respective school systems, and 12 were diagnosed as LD by Marshall University when they began to experience failure as college students. The students who received LD services in high school reported receiving only tutorial assistance with class work. None reported receiving remedial assistance in reading or spelling while in high school.

The subjects were divided into three groups. All students were selected randomly from Higher Education for Learning Problems (H.E.L.P.), a tutorial program at Marshall University for college students who are LD. The 10 students in Group 1 received no intervention. Group 2 consisted of 10 students who were taught reading using an adaptation of O-G. Group 3 consisted of 10 students who were taught reading using a nonphonetic approach that included oral and written activities to improve decoding skills and comprehension. Ages of students ranged from 17 to 24, with a mean of 20.3 years.

Assessment Materials

Two tests were used in evaluating the techniques employed in this study: the Wide Range Achievement Test-Revised (WRAT-R) (Jastak & Wilkinson, 1984) and the Woodcock Reading Mastery Tests (WRMT) (Woodcock, 1973). At the conclusion of the 5-week program, the WRAT-R and WRMT were again administered to participating students who were not aware of the purpose of the study.

The WRAT-R is an individually administered achievement test that measures skills in the areas of reading (word recognition), spelling, and arithmetic. The WRMT is an individually administered reading test that measures achievement in five areas of reading. For the purposes of this study the WRAT-R reading subtest scores and WRMT Total Reading scores will be provided. The WAIS-R was used to evaluate intelligence of the students in this study.

Teaching Techniques

Multisensory. The Orton-Gillingham approach (O-G) is an alphabetic synthetic multisensory phonetic approach (Gillingham & Stillman, 1960; Mercer & Mercer, 1987) developed for students who have dyslexia. It concentrates on fusing smaller units (letters, sounds, and syllables) into more complex wholes (words). Students learn to relate a concrete object to each sound that is not known, and this extends beyond the letters of the alphabet. For example, in various adaptations of the approach, particular words would be associated with letter combinations: /ph/*phone*; /sm/*small*; /br/*bring*; /tion/*station*; and /-ck/*black*. The one aspect of O-G that distinguishes it from other approaches for LD students is the emphasis placed on reducing our language to the elements—the 44 sounds and 26 letters—with which the language may be written. Associative processes are used when the student associates (linking) the name and sound of a letter with its printed symbol. A multisensory approach is used.

Adaptations of O-G were selected from Cox (1980), Gillingham and Stillman (1960), Hornsby and Shear (1978), Steere (1980), and Traub (1975). A summary of the multisensory techniques used in the study follows:

1. Be certain that the students can read and write all letter sounds/consonant blends, diphthongs, prefixes, suffixes, and so forth. Teach letters or letter combinations that are not known to students using the linkages recommended by the O-G approach.

2. If students do not know the six syllable division types, teach them using the mnemonic device (CLOVER), which represents the first letter of the first word of each of the six rules for syllable division:

Closed (C)	cat
Consonant -le (L)	table
Open (O)	go
Vowel (V)	pair
Silent E (E)	cake
R influenced vowel (R)	car

3. Teach students to blend sounds into words if that is a weakness.

4. Help students to read consistently from left to right so that they do not omit, insert, or skip words. It is helpful to use the flat side of the hand under the line that is being read, moving the hand slowly from left to right with the palm of the hand on the page of print.

5. Teach students rules that will help them learn to decode and encode words. A few rules will allow students to learn thousands of words. It is necessary to remember that these are students whose IQs fall in the average range or above as defined by Wechsler (1981). They must learn to use their intelligence to the greatest extent possible in decoding and encoding the printed word. Students are taught only one rule at a time so that they will not become confused. Use mnemonic devices when possible (e.g., CLOVER).

6. Teach reading, spelling, and handwriting simultaneously. Students who have difficulty discriminating symbols and sounds may be helped through emphasis on the kinesthetic involvement found in handwriting. Students are encouraged to write on a table top with the index finger when they must memorize a large volume of material that has been read. They are taught to say the words or numbers aloud as they are written.

7. Teach students to use the dictionary effectively. Using the ideas presented in *Alpha to Omega* (Hornsby & Shear, 1978), students learn to search for words with a better understanding of where they are located because they have learned the quartiles of the dictionary. This is only done when it is determined that students know the alphabet in correct sequence when presented with cards as follows: ___ p q; m ___ o; and ___ f, as is presented in *Alphabetic Phonics* (Cox, 1980). Basic instruction in dictionary usage has proven to be very beneficial. The use of *Word City* (Morrison, 1982), a dictionary that includes no vowels, makes it less complicated to find the correct spelling of a word as follows: rsnbl/reasonable.

8. Facilitate growth in reading comprehension by having students complete structural outlines such as that found in *Note-Taking Skills* (Kesselman-Turkell & Peterson, 1982).

9. Encourage students to subvocalize as they write.

10. Encourage students to discover for themselves the sensory channels through which they learn best.

Nonphonetic Approach. *Building Basic Skills in Reading* (Drazin, 1983) provides written activities to teach students "all you need to master the basics of reading well" (p. iii). There is no attention to word attack skills. Students are provided with clearly written information on understanding the main idea and supporting ideas, as well as how details are arranged; learning new words when reading context; and how to recognize synonyms and antonyms, root words, prefixes, suffixes, and compound words. *Building Basic Skills in Reading* also addresses critical reading and practical reading (such as following written directions and reading charts, illustrations, diagrams, and so forth). Students are provided with a pretest and a posttest, which they may score themselves. The program also seeks to improve comprehension and literature appreciation. There is no attempt to teach individual letter sounds or to integrate the teaching of spelling/reading/handwriting as is done in the O-G approach. *Building Basic Skills in Reading* heavily emphasizes improving critical and practical reading skills.

Control Group. The group that had no intervention and did not attend summer school during the summer of this

study served as the control group. These students were retested when they returned to school in August.

Procedures

Pre- and posttests were administered by graduate students who had been trained to give the WRAT-R and WRMT. The WAIS-R, which was provided by students' school systems, was accepted for this study provided that the administration of the test was no more than 1 year prior to the study. Students who were diagnosed as LD while attending college were given the WAIS-R in the Psychology Clinic, Marshall University, by a graduate student under supervision of a licensed psychologist.

All students who participated in the study stated that they wanted to improve their reading skills and were willing to participate in the study. All teachers who participated in the study held master's degrees in learning disabilities. The same teachers worked with Groups 2 and 3, and all teachers received instruction in both approaches. The purpose of the study was not discussed with the teachers until after the completion of the study.

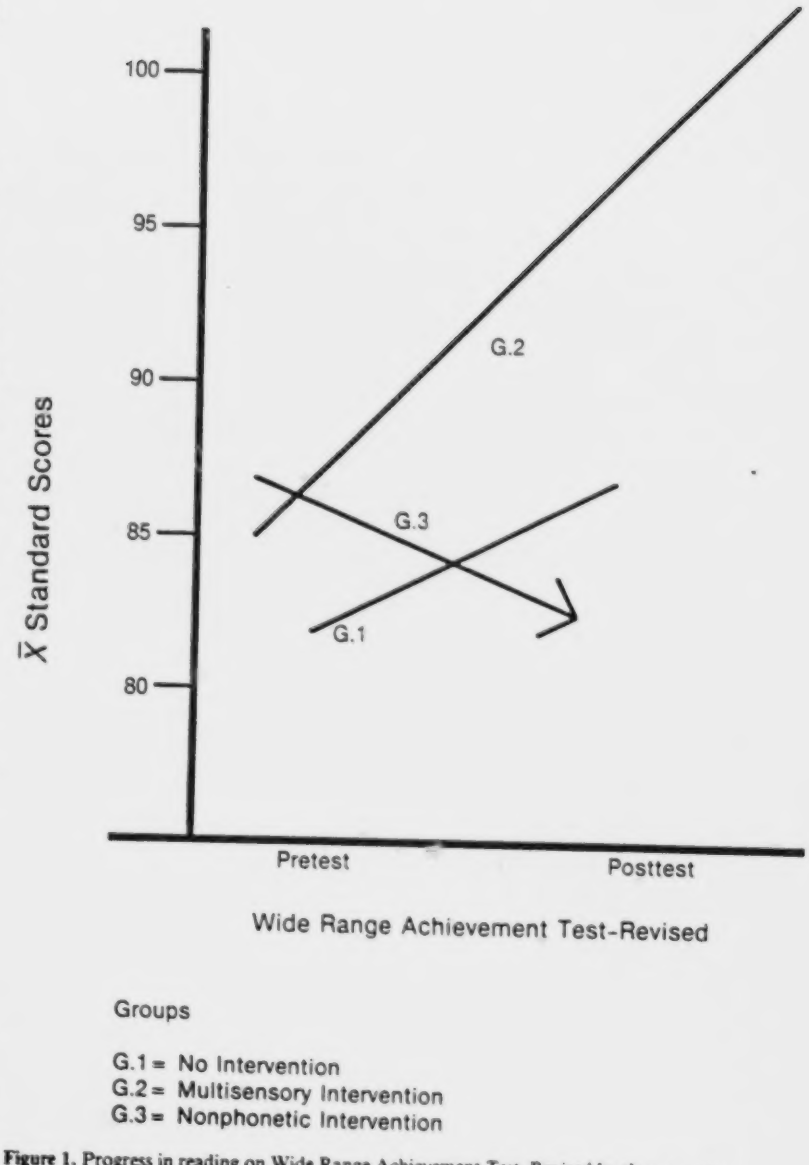


Figure 1. Progress in reading on Wide Range Achievement Test-Revised by three groups.

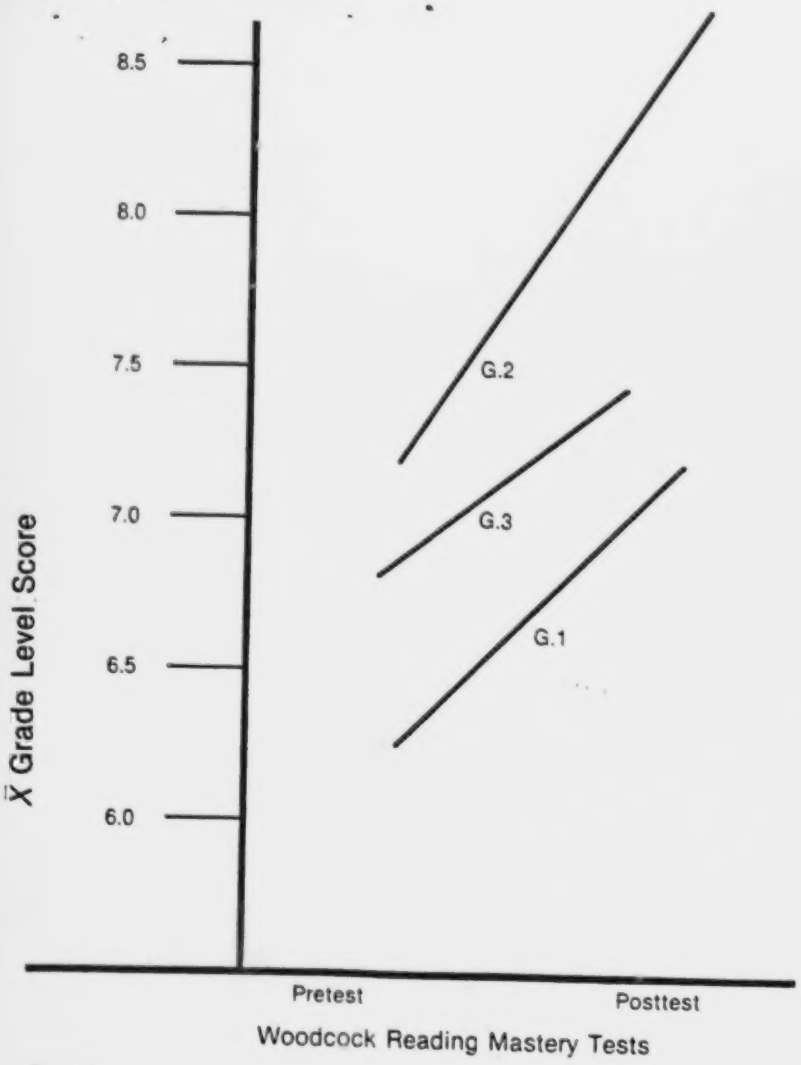
RESULTS

The data were analyzed through the use of an analysis of covariance with repeated measures (Ray, 1982; Spence, 1983). A concern existed that possible differences in the IQs of the subjects would affect progress in reading achievement in this study. Therefore, IQ was the covariate in the analysis of covariance. There was not a significant difference in IQ between the three groups. Each variable was treated separately. The independent variables were the three treatment groups (O-G, nonphonetic, and control).

The first split plot 3 x 2 analysis of covariance, with data from the WRAT-R, with repeated measures on one factor, revealed that there was not a significant main effect for groups, $F(2,26) = 1.29$, $p < .2935$. There was a significant main effect for the subtests, indicating a significant difference between the pretest and posttest scores of the WRAT-R, $F(1,57) = 12.76$, $p < .001$. The interaction between groups and subtests was also significant, $F(2,57) = 10.24$, $p < .0005$. This indicates that there was a differential response made on the repeated measures by the three groups (see Figure 1).

The second split plot 3 x 2 analysis of covariance revealed that there was not a significant main effect for groups, using the results of the WRMT pretest, $F(2,26) = .37$, $p < .694$. There was a significant main effect for the test factor, $F(1,57) = 15.12$, $p < .0006$. This result indicates that there were significant differences between the pretest and posttest scores of the WRMT. The interaction between groups and tests was also significant, $F(2,57) = 4.17$, $p < .0264$. This interaction indicates that the groups were making a differential response on the repeated measures variable (see Figure 2).

The Tukey HSD (Honestly Significant Difference) Test was selected to determine in which groups a significant difference between pre- and posttest measures existed. The results upheld the hypothesis that college students who are LD will make significantly more progress in reading when an adaptation of O-G is used, rather than a nonphonetic approach or no intervention.



ure 2. Progress in reading on Woodcock Reading Mastery Tests by three groups.

ISCUSSION

Given the absence of research regard- g the effectiveness of O-G with the col- ge student who is LD, this area seemed be in much need of study. Liberman d Shankweiler (1985) found that success learning to read and write is directly ated to an awareness of the underly- g phonological structure of words. or readers often have difficulty divid- words into their phonological constit- nts and, in addition, they may have other phonological deficiencies as well. Geschwind (1982) stated in a luncheon lecture at the Ninth Annual Conference of the New York Orton Dyslexia Society: "It is particularly fascinating to me and to my co-workers to realize that the fundamental concepts of the work that we have been carrying out are essentially identical to those formulated by Orton in that pioneering period." Geschwind then presented 13 reasons why Orton's philosophy was correct. Rawson (1986) added a 14th reason, which pertained more specifically to Orton's educational recommendations for the student who is LD (dyslexic).

The present study has found that the students who were exposed to O-G made significantly more progress than students in the other two groups. The authors are convinced that this occurred because the approach is theoretically sound. This study has found that the college student who is LD can make significant progress in reading when exposed to the phonics rules, generalizations, study skills, and so forth, that accompany the O-G program. However, one should not forget that the program referred to here as "O-G" is expanded from the original O-G approach. As a result of this study, we now have some evidence that it is appropriate to continue to expose the writing college student who is LD to O-G remedial experiences that will make improvement in reading possible.

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